

Central Valley Flood Protection Plan: Levee Vegetation Management Strategy

State of California (State) law, enacted through the Central Valley Flood Protection Act of 2008 and codified in Sections 9600 through 9625 of the California Water Code, requires the California Department of Water Resources (DWR) to prepare the Central Valley Flood Protection Plan (CVFPP). The CVFPP proposes a State Systemwide Investment Approach for sustainable, integrated flood management in areas currently protected by facilities of the State Plan of Flood Control. The CVFPP represents a foundational planning component of DWR's statewide FloodSAFE California Initiative.

*In 2009, the California Levees Roundtable signed the **California's Central Valley Flood System Improvement Framework** (Levees Framework Agreement). This Framework included interim criteria for managing vegetation on levees for visibility (inspections) and accessibility (floodfight and maintenance) with the expectation that a comprehensive strategy would be developed and included in the 2012 CVFPP. Aspects of the Levee Vegetation Management Strategy are presented in Sections 3 and 4 of the 2012 CVFPP. The full Levee Vegetation Management Strategy is included in the Conservation Framework, Attachment 2 to the CVFPP.*

The 2012 CVFPP describes implementation of the State's approach to levee vegetation management, which will be adaptive and responsive to:

- The results of ongoing and future research, and
- Knowledge gained from levee performance during high water events.

CVFPP Levee Vegetation Management Strategy

The CVFPP Levee Vegetation Management Strategy reflects a flexible and adaptive management strategy that meets public safety goals, and protects and enhances sensitive habitats in the Central Valley. This strategy also reflects a prudent use of limited public resources in addressing flood risk. Based on the current understanding of levee failure mechanisms, properly trimmed and spaced levee vegetation poses a low threat to levee integrity as compared to many indisputable risk factors, such as under-seepage, through-seepage, slope instability, erosion, and rodents. The State's approach to levee vegetation management considered this in a balanced recognition of its role in sustaining ecosystem viability and levee integrity.

Under this strategy,

- New levees will be constructed and managed in consistency with the guidelines in U.S. Army Corps of Engineers (USACE) Engineering Technical Letter 1110-2-571 with a vegetation-free zone.
- Levees with "legacy" trees will be managed to allow the existing large trees and woody vegetation to live out their normal life cycles unless they pose an unacceptable threat, while maintaining visibility for inspection and access for maintenance and flood-fight. This strategy allows for the retention of lower waterside vegetation below the Vegetation Management Zone (as described on the next page).

The State's adaptive Levee Vegetation Management Strategy encourages and supports continued research on the risks and benefits of trees in relation to levee performance. State and local agency-sponsored research, along with USACE-sponsored research, are addressing information gaps surrounding levee performance through applied research and an ongoing synthesis of historical information. Findings of these research programs are informing current policy development, and will continue to do so for future CVFPP updates.

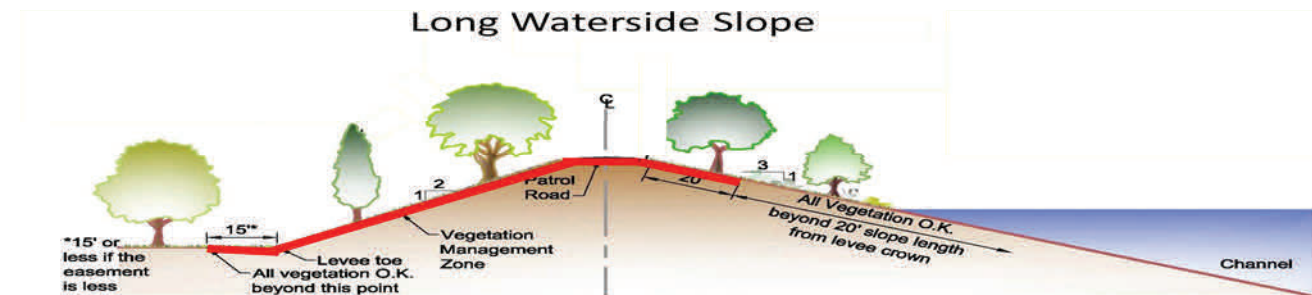


Levee managed for visibility and accessibility

Technical Description of Important Concepts

Details for several important concepts of the Levee Vegetation Management Strategy are:

Vegetation Management Zone. The Vegetation Management Zone is the area on and near a levee in which vegetation is managed for visibility and accessibility using a life-cycle management strategy. For typical sized levees (as shown in the figure below), the Vegetation Management Zone includes the entire landside levee slope plus 15 feet beyond the landside toe (or less if the existing easement is less than 15 feet), the levee crown, and the top 20 feet (slope length) of the waterside levee slope. The Vegetation Management Zone for levees with other slope configurations is fully described in the Conservation Framework.



Lower Waterside Slope. Waterside vegetation acts to stabilize the bank and provide erosion protection, while also providing habitat for sensitive species. In order to sustain this critical habitat, the CVFPP levee management strategy retains waterside vegetation (below the Vegetation Management Zone). Vegetation would be removed (in coordination with resource agencies) only when it presents an unacceptable threat.

Life Cycle Management. Life Cycle Management achieves “visibility and accessibility” criteria while progressing gradually (over many decades) toward the current USACE vegetation policy goal of eventually eliminating woody vegetation from the Vegetation Management Zone on the landside slope, crown, and upper waterside slope of levees. Existing trees and brush larger than 4” should be allowed to remain on the levee slope to live out their normal life cycles.



Lower Waterside Vegetation

Vegetation that was introduced, allowed, required as mitigation, or endorsed by a previous USACE action to comply with environmental requirements, or was present when the levee system was transferred from the USACE to a non-federal sponsor, will not be removed.

Trees (alive or dead) will be removed if they pose an unacceptable threat to levee integrity. Removal would be accomplished in consultation with appropriate resource agencies.

Implementation of the life-cycle management plan will result in the gradual loss of important terrestrial and upper waterside riparian habitat throughout the State Plan of Flood Control levee system. However, the CVFPP’s Levee Vegetation Management Strategy includes the early establishment of riparian forest corridors that are expected to result in a net gain of this habitat.